

# Mindfulness and Technology: Traces of a Middle Way

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## ABSTRACT

We contemplate paths between *form* and *formlessness* as a middle way between digital technology for mindfulness, and mindfulness without digital technology, thereby inviting alternative departure points with interactive systems. In doing so, we step into a contested yet potentially fertile arena to challenge the handling, analysis and reporting of the relationship between mindfulness and technology and the methods used to interrogate it. Through the documenting of the authors' own creative practices (video, photography, and gardening), material traces and written vignettes of our experiments are presented to stimulate resonances and evoke mindfulness with readers. We also question the form of conference papers to consider how we can best share formless states of being in discussing their relevance for design.

## Author Keywords

Mindfulness; form; formlessness; interrelatedness; creative practice; Zen Buddhism; design; awareness; technology.

## ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous;

## INTRODUCTION

We present here thoughts about how we might design with an awareness of mindfulness that develops existing but fragmented work in this area [14,22,26]. While the dominant rational frame of technology design research can be problematic for mindfulness, we attempt to engage with it rather than avoid or criticise it, using this essay to wonder what relationships are possible between technology and mindfulness, while contemplating the interrelatedness of designing for interaction, use and wider life.

A considerable challenge is that our topic draws attention to states of being and how we might describe and aspire to them, both as a starting point for designing tools and in what we design. States of being are not traditionally associated with words or images, and we deliberately

struggle with this relation – between what we mean and what we can show and can discuss. Although much of this essay is taken up with representing the conditions we are talking about, we also devote part of the paper to reflecting on how we represent such intangible facets of being.

The work reported here comprises explorations into how we configured technologies in our mindfulness practices and how we developed a collaborative methodology to analyse this together. From this, we put forward three contributions:

- 1) We offer thoughts on mindfulness to help others speak about this concept constructively and imaginatively in design terms, drawing on the work of philosophers and the spirituality (e.g. Zen and Buddhism) that informs it.
- 2) We build on Zen and Taoist frameworks to speak about technology in a novel way: *giving form to formlessness*; *immersing in formlessness through form*; and *sharing form to evoke formlessness* provide three ways that technology and mindfulness interrelate.
- 3) We question the suitability of existing publication formats for sharing design knowledge of concepts born outside positivist conventions (such as mindfulness) to continue work done by creative practice research [e.g. 6,16] in innovating presentation methods.

This leads us to propose a relationship between technology and mindfulness, not in service of one another, but through their processual engagement, to find out what we might learn about ourselves, about one another, our relationships to the world and how we accommodate openness, interpretation and, additionally, awareness, within the structures of technology design.

## BACKGROUND

We give an introduction to existing work on mindfulness, methods of collective research, and work on formal aspects of aesthetics and design, to help situate our arguments.

While for academic rigour and knowledge advancement, definitions may be desirable, when it comes to mindfulness, we partly resist such logical constructs. We do so to respect and acknowledge the history of mindfulness and its spiritual and philosophical roots in India, China, Tibet and Japan. When we trace these origins, it becomes apparent that deploying mindfulness towards an end outcome has been questioned and rejected [11,13,24,28]. Meditation is like a 'technology' (to use the language of our field), 'designed' over thousands of years to short-circuit the mind, which discriminates, analyses and divides the world into objects,

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and bring mind, body and spirit into holistic alignment. Looked at with the wisdom of such teachings, the Cartesian separation is an unfortunate legacy that pervades interaction design; a separation which may go some way to explain why mindfulness is often framed in functional ways, quipped to be “an instrumental tool almost on a par with aspirin and accorded no respect as an on-going state of being” [2:626]. A conflation of mindfulness and meditation can exacerbate the issue, leading to a misunderstanding that a method (like meditation) can be undertaken as a guarantee for certain outcomes (like mindfulness). Instead, here, we consider how to accommodate openness, interpretation and awareness within the structures of technology design, making such tensions in worldview explicit.

### **Mindfulness and Living Life**

Interest in mindfulness in interaction design and HCI has increased in recent years. Designers have always been motivated by a desire to solve real-world problems including the design of technology for the ‘betterment’ of people’s lives. Such intentions are admirable, but the instrumentality with which design and technology is approached and deployed, can be problematic when mindfulness enters this paradigm. Existing work often emphasizes usefulness, like enhancing work performance [5,15] or reducing stress [29], reflecting the positivist epistemology in HCI. Such deployment of mindfulness echoes remarks by the authors of seminal book *The Embodied Mind* [28], Varela, Thompson & Rosch, who note that the folk understanding of mindfulness in America has a tendency to emphasize states of altered consciousness (increased concentration, trance-like dissociation and medically beneficial ways to relax) as means to get away from “mundane, unconcentrated, unrelaxed, nondissociated, lower state of reality” [28:23]. This is the opposite to mindfulness informed by Buddhism and Zen. Celebrated Zen scholar and practitioner Nhat Hanh [18:4] elucidates differences between a goal-driven activity and bringing aliveness to every moment: “There are two ways to wash the dishes. The first is to wash the dishes in order to have clean dishes and the second is to wash the dishes to wash the dishes”. To have clean dishes is to be “sucked away into the future”; we are “incapable of realising the miracle of life while standing at the sink” [18:5] if we only focus on outcomes. Zen-informed mindfulness is to “recognize the fact of living in the midst of life as it is lived” [15:45], even in the most mundane, dreary, rainy day (see Yoko’s ‘rain video’ at [vimeo.com/211613276](https://vimeo.com/211613276)).

### **Technology and Mindfulness**

In seeking mindfulness, modern tools can be part of the problem. Mental distance from what surrounds us, i.e. not being present in the moment, can be a chronic symptom of technology use, aggravated by the ubiquity of technology in our lives. This has led some to believe that the only way to be mindful is to switch off one’s mobile device(s) as an act of resistance to its intrusiveness and distraction [3].

Instead, we build on previous work [2] where Yoko and Ann explored mindfulness as a means to enable a reflective and collective awareness with and through technology. In their earlier work, they posit that “our daily lives are already implicated relationally to all other constituents of the world” and that technology might disrupt *mindlessness* through “portals and detours to a changed state and the moments when a different consciousness beckons” [2:631]. They note that technology cannot enable mindfulness unless the user is disposed to being mindful in the first place and describe examples of pre-digital forms of technology used in religious practice as aids for contemplation and inner development (e.g. a Buddhist prayer wheel, a Catholic rosary). The view of technology here, similarly extends beyond using interactive applications to consider a broader starting point. This is juxtaposed with work that focuses on apps [e.g. 14,22,26], where there is a growing trend to use neuro-biology, VR and other sophisticated tools to measure and give feedback on body functions with a view to quietening them.

### **METHODOLOGY: Methods to Research Mindfulness**

An immediate challenge to experimental and ethnographic processes is that we subscribe to a mindfulness practice that cannot be measured or explicitly observed as a visible state of being. Following Suzuki [25], to be self-conscious about mindfulness is also problematic because mindfulness has then been forfeited to some inner reflection on how one is processing the world. Therefore, the authors innovated a method, inspired by other non-standard pieces of research, such as the collaboration between Watts, Ehn and Suchman (in which letters about thinking and emotional states were sent and mutually influenced each partner in the research) [30]. As with their work, our friendship and shared interest evolved into a practice of research. We liken the evolution of our shared understanding, with its growing body of relevant work, to a collaborative auto-ethnography, where material builds through collaboration with others [4]. More detail of our collecting, sharing and reporting processes is discussed below, interwoven with accounts of what we began to learn. We note that sharing of significant objects appears in other work in our field, for instance, Petrelli et al.’s time capsules [21] or Odom et al.’s teenagers’ digital objects [19]. While these are not drawn from similar inquiries, they do exhibit the power of artefacts (both physical and digital) to provide stimulus for reflection and emergent discussions among those working with them.

### **How We Came to Share Practices**

Our collaboration grew from a conversation immediately following Yoko and Ann’s presentation [2], which inspired a common interest in mindfulness and possible interrelationships with technology and design. Whilst none of us profess to be experts, we practice mindfulness in unique ways in different locations in our personal time. Such diversity, evident in our subsequent communications, sparked intrigue to learn more about each other’s varied experiences and orientations to mindfulness, so we

embarked on this endeavour as remote colleagues with a mutual curiosity. That the form of this work grew out of friendship and dialogue is not surprising when it is considered. We are design researchers and acted as practitioners taking a leap of faith collectively, without too much rational fortification [10]. Personal meanderings are not only allowed to feature, but are exemplary of form following meaning. It is doubtful if our explorations would have been so compelling had we planned and rationalized our approaches for the reasons given by Suzuki and Nhat Hanh. Our rigour exists in honesty and conviction.

Our process was largely self-directed and independent. We could not practice together in one location – we live and work in Australia and UK (south and north-east England). However, we aimed to share our accounts regularly through email, Skype, Dropbox etc., as aids in disclosure.

There was no agenda to use technology in our practices other than being open to experiment. While such online technologies did not create our practices of mindfulness, they helped us overcome challenges to our communication over distance and time zones. More importantly, the desire to share with each other – and the role of technology to share – became clearer as we conversed, reflected and were mutually inspired by each other's creations. This fuelled our explorations in how various technologies such as smart phone, video, and digital camera already accompanied or could accompany our mindfulness practices. Visual media became a means and focus for our sharing, rather than something imposed on our conversation. Our discussions trace how these technologies configured our sharing and came to have more significance as time went on.

Our accounting here is drawn from materials created during 2015-16, and our reflection on our method of exploration, improvised serendipitously through sharing materials. This account is, thus, supported by a curated and reflexive interweaving of video stills, photographs, quotes and reflective writing, mutually shaped by our collaboration. This partly captures our discussions and poetic descriptions of personal practices complement the images. Due to space, only the most salient examples we discussed and explored are shown, drawn from a broader collection of work (see Yoko's videos on [vimeo.com/user51424305/videos](https://vimeo.com/user51424305/videos); Simon's photography [www.flickr.com/photos/simonbowen/](https://www.flickr.com/photos/simonbowen/) and Ann's garden blog [boundaryobjects.tumblr.com](https://boundaryobjects.tumblr.com)).

### **Avoiding Analysis Through Text, Images and more**

As noted, our orientation to mindfulness is informed by Buddhism and Zen. Ironically for us, Zen teaching avoids manuals and definitions because, as the Zen scholar Daisetz Suzuki cautions, they can over-emphasize the analytical brain that “in spite of its practical usefulness ... goes against our effort to delve into the depths of being” [24:271]. From cognitive psychology, Bortoft [7] explains the analytic orientation as a selective perception, distinguishing one thing from the other to immediately separate oneself and to stand outside of phenomena.

Building on Goethe's science, he suggests foregrounding sensory, holistic, intuitive, non-verbal and non-linear modes as a way to turn one's awareness from the singular object and to encounter the whole. Likewise, the images and videos here are traces of sensory, non-linear and immersive forms explored to “encounter the whole” [7] in places we inhabit. Echoing Bortoft, Varela et al. further observe that mindfulness meditation leads to an awakening of “how disconnected humans normally are from their very experience” [28:25]. Disconnect is a habit that can be broken. Mindfulness meditation can prevent the practitioner from being lost in mindless habits and to realise “the meaning of what we are doing, if we can be what we do” [27:38]. Thus, the authors' practices of mindfulness, as well as the routes toward it, are as diverse as life itself, providing glimpses of their personal environments, urban settings and daily routines. The plurality of expression and practices, as well as the multiple interpretations of mindfulness, offers another challenge to formal reporting. What we cannot convey through words alone, we assemble through juxtaposition of forms over the next few pages.

We observe that the form of the analytic academic paper is particularly hostile to the commitments of mindfulness observed by these masters, but in order to find a ‘middle way’, we explore how both text and images can make a contribution to share our ways of thinking, not just to explain and analyse, but to evoke and invite hermeneutical participation by the readers. While this cannot make readers mindful, we present our examples as experiments to connect with readers to see if we can meet somewhere in the “in-between” [1] that emerges in mindfulness, as categories (e.g. image/text) and boundaries are eroded.

We use form to play with form and formlessness as an essential ingredient in complementing the linearity and narrow formatting of traditional papers. This is not a *pictorial* submission, because *pictorial* criteria emphasize visual over written forms [5], which would also be limiting for our paper. We seek to extend what is possible with a paper submission to play with the configuration of these elements as a sensorial fulcrum in communicating our routes towards mindfulness. We learn from graphic design, where meaning and communicative power come from composition, hierarchy, contrast, movement, tension and balance of white space, which, combined, constitute visual literacy [17]. By exploring how text and image can be used flexibly and interrelationally, with neither given explicit preference, we aim to inject a different tempo and purpose into the reading here.

The following four pages comprise the authors' (henceforth Y, A, S) verbal and material conversations, illustrating how we grew more responsive and sensitive to our environment and to one another, and how we made sense of our experience of mindfulness by connecting with and through technology and how, in turn, the technology fed our practices of mindfulness and reflection upon it.

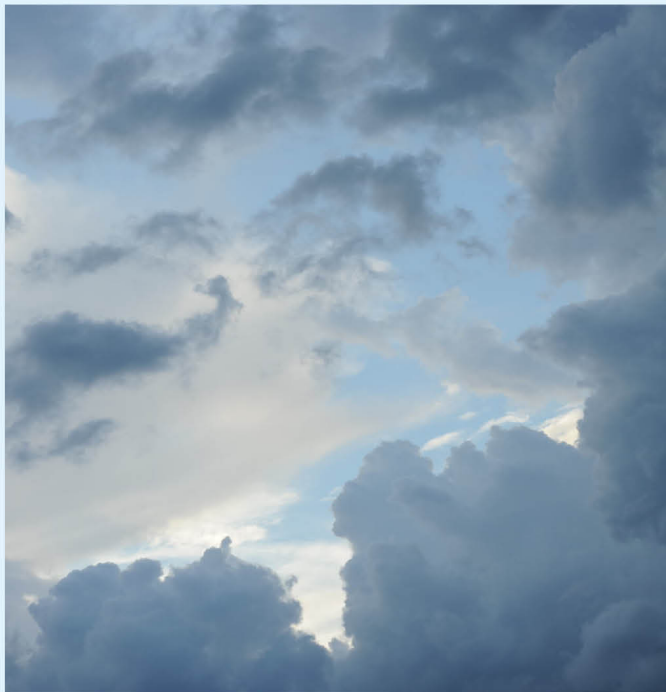


*I'm not a film-maker. My iPhone has a good, easy-to-use video function so in moments when I felt I was in a mindful state, I used it as a way of accompanying what I was doing. I followed the crested pigeons peck around for food - I like their pointy quiff. I was taking a walk in the park, and the rustling sound of the leaves was really delightful. I was waiting for my train to come so I watched the Melbourne Star from the station platform pulse its lights. I don't think these clips 'capture' mindfulness, I don't believe mindfulness can be captured this way, but I am curious as to what role these traces perform. And when I watch these videos again, they draw me back to that moment in a powerful, embodied way. I feel it. I know it's not just a cognitive recall thing, and can't really put a finger on how to describe it.*

*These clips aren't precious. They're low-quality, home-made videos. All I did was three actions with the camera ... Because it's so simple, it wasn't distracting to do in those moments. I wasn't carefully composing, framing, adjusting lighting etc., which would've brought another kind of attentiveness and focus, but towards an outcome, perhaps, rather than on the act of doing.*



**Video still and quote by Y, 23/7/2015**



**Photography and quote by S, 24/7/2015**

*I was at a train station, waiting for a train to Liverpool. We'd had heavy rain showers since late afternoon, including during the drive to the railway station. The rain had paused and the sky was very dramatic. I could have spent the time checking emails, but instead decided to simply watch the clouds moving across the sky. I realised that I had my DSLR camera with me, so made a couple of photos. The sky was changing all the time - layers of clouds moving past each other, the light breaking through and between, constantly morphing.*

*Y's video recording practice sprang to mind - would it work in a similar way for me in accompanying a moment of mindfulness? Not quite. I think I became occupied with the technicalities of video recording too much - framing the view, bracing my iPhone against a wall to get a steady shot... But, watching it again now, the resulting recording does evoke that moment.*

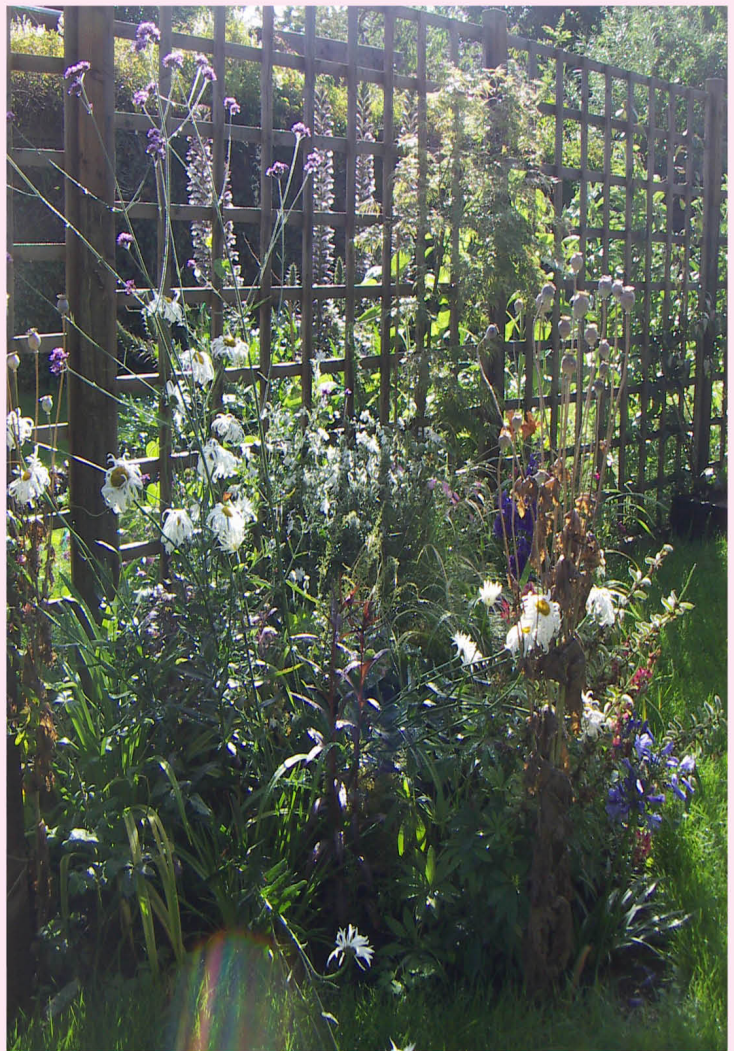


*I wander into my garden. Sometimes it is with the intention of doing some gardening. But there is another type of visit. I am going outside to check on the outside world: What has grown since I last visited? I have long known that it is of emotional importance for me to be able to wander out into a green space and tend something. There are at least two temporal scales operating here and both are important.*

*One is long term: I started building my current garden in 2008, leaving an apple tree and a few shrubs that predate my arrival in the house. Everything else is new, put where I wanted it and has been growing fast or slowly, meekly or aggressively, ever since. Different plants dominate each season and which will change each year. Making the garden is a balancing act: training and pruning, encouraging and clearing. Soft fronds meet the hard edges of the lawn. Bronzes are cut with bright green and deep reds. Seed heads are left to age and provide shape into autumn. Sweet scents are placed near the house in the hope they will waft in. The work is never quite finished.*

*This is one scale and it progresses over the seasons (or longer) and a good example of the tempo is the way that some self-seeding flowers creep into the garden, across it and on to the neighbour's over the course of several summers. The movement is only visible over years.*

*At another scale is the garden's mood. This is not about managing and tending, though it might be to tuck a tendril into a lattice, like pinning back a lock of unruly hair. It is looking in the pond to see if the tiny black goldfish of the new generation will come to the surface if I am quiet. It is about smelling every rose in the garden, rubbing the sage and sniffing my fingers.*



*This tempo is affected by the season, but it also relates to weather, light and time of day. The moment is caught in the curl of a petal or the hot pinks, reds and oranges of what happens to be flowering. It is the sharpness of a ripe raspberry and the acid smell of cutting rhubarb. It is the sweet low scent of honeysuckle in the evening. In the space of a few moments I can reverse the stress of a day.*

**Photography and quote by A,  
12/12/2015**





*I crept out of the holiday cottage before 6am, needing to get to the shore before the sun rose. This meant that preparation was important to increase my chances of making the kind of image I envisaged – checking the weather forecast for clearer skies, using the ephemeris app to plot the direction of sunrise and therefore, along with a map, from where I could watch this light hitting the castle. I parked at the beach car park closest and walked quickly through the dunes, around the golf course, and behind the castle to my chosen spot. Lugging my camera bag and tripod whilst anxiously watching the sky to the east, and my watch.*

*So far, so mindless. I was certainly cleaning rather than washing the dishes. But then I get to the rocky shore with half an hour until sunrise and everything changes. I am here and I must slow down and observe. The preparation might indicate how the light will illuminate the castle but, in the wide vista I am seeking to create, this is a background point of interest, something to draw the eye. Now, I must find my foreground, the essence of this place at this time that roots the castle to its surroundings. I must look. I must feel.*

*I know this section of coast from previous visits so wander along the shore looking for where the sea scoops in and the rock thrusts out – a spot from where the sea and rock vie for attention in front of the castle. I move down onto a such a candidate and, my camera still in its bag, spend more time at that spot looking at how the sea moves over the layers of rock, noticing which rock pools are touched by the waves and which are still, and finding the greens and oranges of the seaweed a welcome contrast to the harsh dark rock. I crouch and shift, seeking the exact spot at which these elements combine into an arresting whole. Only then do I unpack my tripod and camera. After a flurry of activity, most of it on auto-pilot (I know my gear from much practice), there is more waiting. Waiting for the sun to rise. Watching the light as it changes and develops. Pressing the shutter release when appropriate. I am calmer in those moments, happy to be in that place at that time witnessing the sunrise with my camera.*

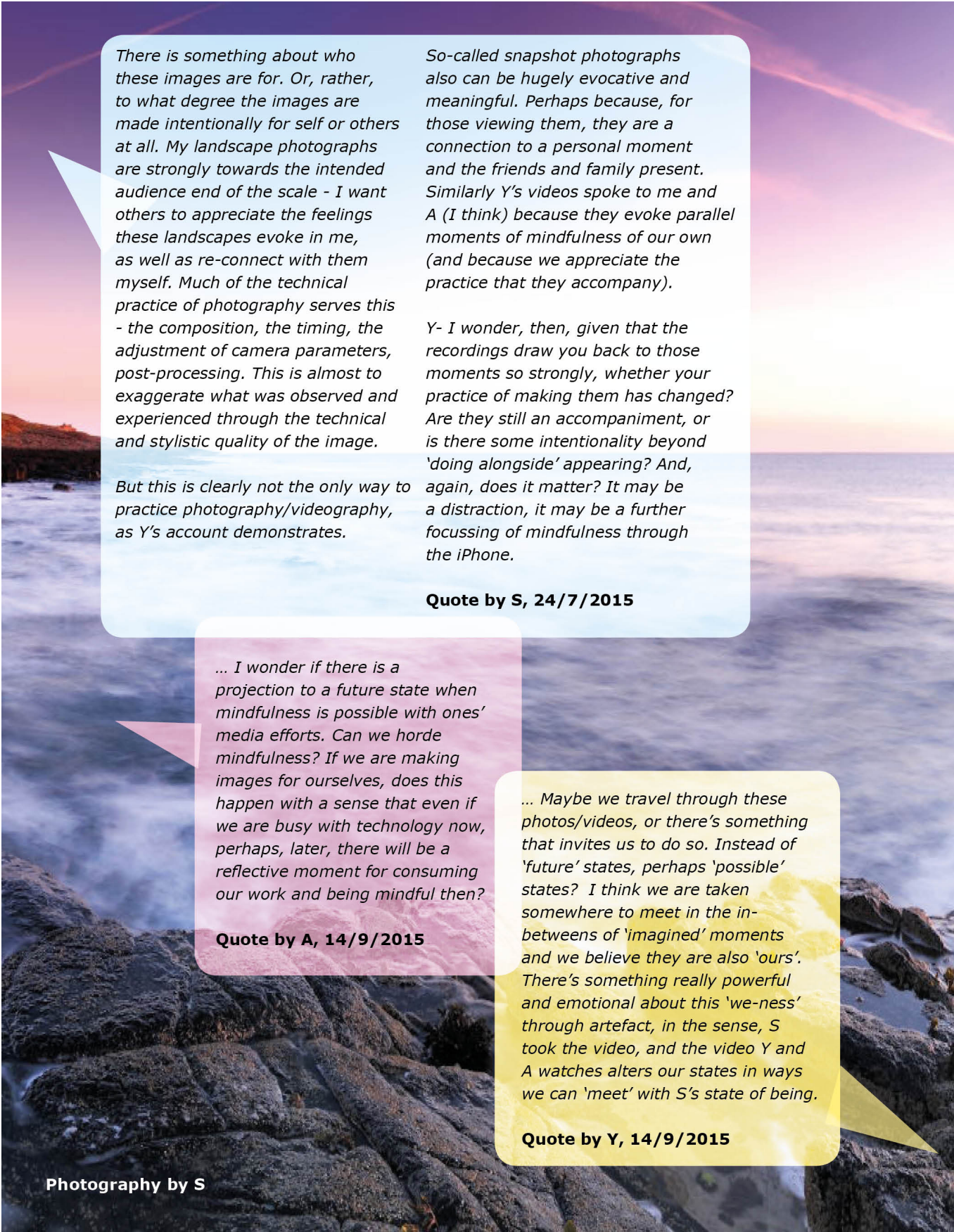
**Photography and quote by S, 24/7/2015**

*I like how they [photographs by S, A, Y] work, even though they're different ...[each] describes ways of being present in the moment, and opening up to the wonderment of the surroundings.*

*An outcome can evoke this for others - whether they call it mindfulness, is then academic. Technology, landscape, weather, our presence 'assembled (?)' or 'opened up' in that moment...*

**Quote by Y, 14/9/2015**





*There is something about who these images are for. Or, rather, to what degree the images are made intentionally for self or others at all. My landscape photographs are strongly towards the intended audience end of the scale - I want others to appreciate the feelings these landscapes evoke in me, as well as re-connect with them myself. Much of the technical practice of photography serves this - the composition, the timing, the adjustment of camera parameters, post-processing. This is almost to exaggerate what was observed and experienced through the technical and stylistic quality of the image.*

*But this is clearly not the only way to practice photography/videography, as Y's account demonstrates.*

*So-called snapshot photographs also can be hugely evocative and meaningful. Perhaps because, for those viewing them, they are a connection to a personal moment and the friends and family present. Similarly Y's videos spoke to me and A (I think) because they evoke parallel moments of mindfulness of our own (and because we appreciate the practice that they accompany).*

*Y- I wonder, then, given that the recordings draw you back to those moments so strongly, whether your practice of making them has changed? Are they still an accompaniment, or is there some intentionality beyond 'doing alongside' appearing? And, again, does it matter? It may be a distraction, it may be a further focussing of mindfulness through the iPhone.*

**Quote by S, 24/7/2015**

*... I wonder if there is a projection to a future state when mindfulness is possible with ones' media efforts. Can we horde mindfulness? If we are making images for ourselves, does this happen with a sense that even if we are busy with technology now, perhaps, later, there will be a reflective moment for consuming our work and being mindful then?*

**Quote by A, 14/9/2015**

*... Maybe we travel through these photos/videos, or there's something that invites us to do so. Instead of 'future' states, perhaps 'possible' states? I think we are taken somewhere to meet in the in-betweens of 'imagined' moments and we believe they are also 'ours'. There's something really powerful and emotional about this 'we-ness' through artefact, in the sense, S took the video, and the video Y and A watches alters our states in ways we can 'meet' with S's state of being.*

**Quote by Y, 14/9/2015**

**Photography by S**

## DISCUSSION

We have shared some ways in which technology and mindfulness relate for us, and it is clear from these accounts that neither technology nor mindfulness feature in instrumental ways, but might enable different meaning, quality and purpose in the authors' lives.

### Mindfulness with and through Technology

We see a blurring as we consider our tools as platforms for scaffolding something as formless as mindfulness. Our tools can act as a path to mindfulness or a distraction. When S picks up his camera, he is embarking on a form of mindfulness-to-come in his expectations of what it enables him to do. By contrast, Y's iPhone is a response to circumstances and has immediacy, both in recording and replaying (Fig. 1).

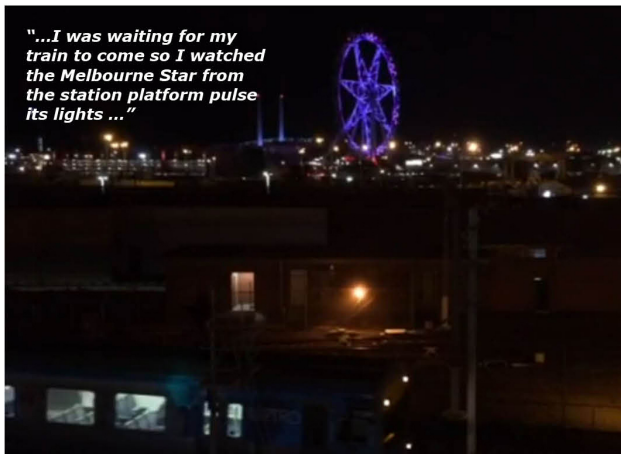


Fig. 1 A still from Y's video (<https://vimeo.com/163898238>)

We note here that the technology described – a DSLR, an iPhone, a garden – cannot be interchanged, because our practices of mindfulness are distinct - engaged with in highly personal ways - and thus our relationship to technology is also different. This is most apparent in the story shared by S, who, inspired by Y's video, then films the storm clouds when waiting for a train: "*Y's video recording practice sprang to mind - would it work in a similar way for me in accompanying a moment of mindfulness? Not quite. I think I became occupied with the technicalities of video recording too much*". Yet, his preparation of photography equipment is described as "*auto-pilot (I know my gear from much practice)*" and his intuitive, well-rehearsed knowledge of his equipment enables him to be 'in the moment' to watch the light and landscape unfold through the camera lens.

In contrast, Y's equipment (iPhone) accompanies her mindfulness moments because it is always there in her handbag. Filming via iPhone is not her usual practice in the way S speaks of his camera, but the iPhone's ease-of-use makes it unobtrusive. Familiarity with tools is a part of moving past awareness of them, as phenomenologists have told us. Settling in with our tools is a part of welcoming them into a more nuanced relationship with

broader ambitions, even when that ambition is to abandon our ambitions for a while.

### Form and Formlessness

In this section, we show how we can cohere our practices and explorations through a Zen construct of *form* and *formlessness* (sometimes also referred to as *being* and *nonbeing*).

The interrelatedness *form* and *formlessness* is well articulated by Thomas Kasulis [11], an American scholar of Zen philosophy. When Kasulis visits a Japanese temple, he sees a giant suspended iron bell and asks a priest how old it is. The priest replies "This is about five hundred years old, but... [pointing to the void within the bell] the emptiness within – that's eternal." The priest then proceeds to strike the bell and the tone "permeates the area from the distant mountains across the valley, beyond the tops of the cedars". The priest smiles, turns to Kasulis and asks: "Now please answer *my* question. Where did the sound come from?" [11:34].

This *mondo* – an oblique, dialogic puzzlement between a master and student [31] – is a common structure in Zen teaching to avoid deliberate instructions. Kasulis is dumbfounded by the question, but then comes to make sense of it, thus: "think of the casting of the bell as Being [form] and the hollow center as Nonbeing [formlessness]. ... Without the hollow interior, the bell would be a metal slab that might clang but never emit music. On the other hand, the hollowness without the casting could only produce the rushing echo of silence. For the bell to resound, both the Being and Nonbeing of the bell are necessary ... the bell is *both* the casting *and* the emptiness within" [11:34]. We see how the priest's question draws out the limitations of Kasulis' perception, which fixates only on the form (bell), to provoke a way to accommodate formlessness (emptiness) as well. Focussing just on the bell is to omit the eternity of emptiness. Formlessness does not just refer to the spatial hollowness of the bell, but encompasses a holistic totality of interrelatedness – a resonance with the world around – through the striking of the bell. "Nonbeing itself is timeless and unchanging; only through its interrelatedness with Being does it become specific ... and meaningful" [11:35].

Technology, bell, incense, chanting, and breathing used in meditation are examples of form, all potentially bringing one's presence in resonance and interrelatedness with the world. As the priest reminds us, there is significant difference between focusing only on form, thus ignoring formlessness, or viewing form and formlessness as discrete. If we apply this insight in designing interactive technology, it means we must always consider technology (form) *with* formlessness, and be vigilant about what is omitted. Looked at from this position, the life-force of nature that permeates and constitutes our universe is already part of our technologies – but we have been conditioned to disregard this relationship by our fixation



on form alone. Our explorations thus could be considered to be *mondo*-like, like the conversation between the priest and Kasulis: the technologies we are using and materials shared ‘talk back’ to question us through our exploration and reflection [8,13].

To give more definition to this account, we offer three types of interrelatedness between form and formlessness.

#### *Giving form to formlessness*

This paper shares traces of our making as part of our respective mindfulness practices. This sharing would not have been possible without the aid of digital and interactive technology like a camera or a smart-phone. S’s photography practice reveals how his camera constitutes his encounters with the awe and beauty of his surroundings. Visiting the location, preparing the equipment and waiting for the right moment are rituals of S’s preparation towards mindfulness as much as the photos he takes in the moment: “*Waiting for the sun to rise.... Pressing the shutter release when appropriate. I am calmer in those moments, happy to be in that place at that time witnessing the sunrise with my camera*” (Fig. 2). Here we see how the camera crystalizes as well as constitutes his presence and embodiment in the landscape. The camera becomes a portal that heightens and attunes his awareness to “the pulsation of Reality” [14:9] in resonance with the awe and beauty of the surrounding.

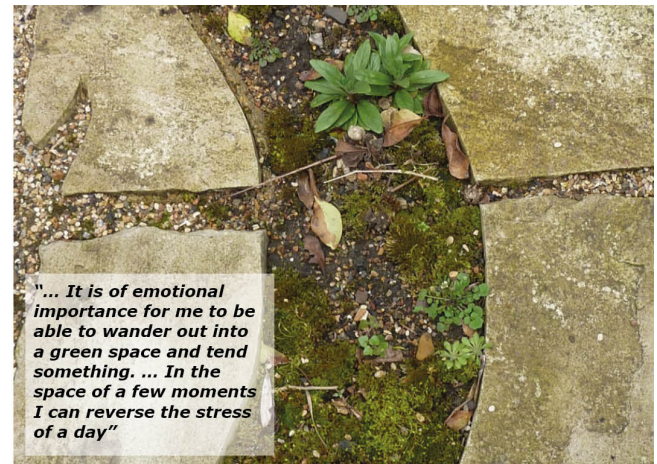


**Fig. 2: S’s photography** (<https://flic.kr/p/pdmZS6>)

#### *Immersing in formlessness through form*

Structured use and assemblage of artefacts (e.g. pre-digital technology) can also catalyze mindfulness practice. This is strongly pronounced in A’s accounts of her garden (Fig. 3) as a place for immersion into moments of mindfulness, having significance and personal meaning. If we see A’s garden as a form of pre-digital technology (in the same vein as a prayer wheel), she has assembled and structured various materials – grass, pond, trees, fish, plants, paths – that invite, remind and immerse her in a sensory ebb and flow of life, energy and decay. This assemblage of materials is not dissimilar to that of Zen gardens (*kare-sansui*), composed of rocks and raked pebbles to invite meditation and immerse in an imagined vastness of oceans, islands and currents through its deliberate emptiness [9]. In other words, we can contrast recording one’s wonder at the world with shaping one’s

own world to wonder at. A’s wandering, checking, pruning, clearing, planting, eating and smelling are rituals that parallel Zen meditation by ‘stripping off all the artificial wrappings humanity has devised’ [24:271] and ‘wip[ing] off the mental dust’ [24:277]. Being in her garden is a way to find moments of connection and contemplation in nature and harmony, while calibrating her mood and cultivating a heightened sensorial aliveness. A uses her words and camera to make a representation of a way of structuring and being with living things, to share these aspects, but the key artefacts are the growing ones.



**Fig. 3: Photo of A’s garden**

#### *Sharing form to evoke formlessness*

Technology, like the iPhone, features as accompaniment to Y’s mindfulness practice. It is not central to it. For Y, mindfulness practice takes place with or without a recording of it, whereas S and A use technology as part of their practice. This distinction highlights a different role that interactive technology can perform: replaying and sharing to evoke a moment: “...when I watch these videos again, it draws me back to that moment in a powerful, embodied way. I feel it. I know it’s not just a cognitive recall thing...”. Y’s videos are quotidian in their snapshot, low-res quality. A view from a train station (Fig. 1), walking (Fig. 4), regarding pigeons or watching rain cascade down the window are almost uneventful scenes of the everyday. Suzuki calls these “sensitivity for the small things of Nature”, in contrast to the grandness of the sun, moon, mountains and rivers, yet “these insignificant and ignoble creatures are in intimate relationship with the grand totality of the cosmic scheme” [24:238]. In fact, these mundane activities are an entry point that connects Y to the ‘grand totality’ of her urban environment. And, perhaps, due to their ordinariness, they are accessible to S and A. For instance, A remarks that she loves to rustle leaves too. The images and sounds on Y’s video are able to conjure sensations and smells of Autumn to resonate with the pleasures of this activity, even if, in reality, it is springtime in the UK when it is watched by A and S (Fig. 4). The memory evokes both pleasure and tranquility.



Fig. 4: A still from Y's video (<https://vimeo.com/163897911>)

Developing this thought, we could say the traces of our imagery, video and texts act upon the authors in ways that help us also create and meet in the in-between of our imagination. The traces can invite others to travel through them: *"we are taken somewhere to meet in the in-betweens of 'imagined' moments and we believe they are also 'ours'. There's something really powerful and emotional about this 'we-ness' through artefact, in the sense, S took the video, and the video Y and A watches alters our states in ways we can 'meet' with S's state of being."* The 'in-betweens' collapse boundaries, merge distinctions and heighten a relational sensitivity. This resonates with Akama's [1] discussion of 'in-between' as *Ma* from Japanese philosophy. People who encounter *Ma* (between-ness) "can no longer feel part of a world of predefined boundaries that seek to distinguish self-other, object-subject, human-non-human, time-space" (p24). In other words, the very acts of distinguishing and naming "collapses and becomes an 'opening or emptying of oneself into the immediacy of the ever changing moment', and [can] be taken to a 'boundary situation at the edge of thinking and the edge of all processes of locating things'" (Akama quoting Pilgrim [1:24]).

The three relationships we offer between technology and mindfulness are presented to invite speculation as to how interactive technology might support a middle way between instrumental use and non-use. When we *give form to formlessness*, we can be open to wonderment, find the spectacular in the most mundane and carry the spectacular with us, sometimes, through our technologies. *Immersing in formlessness through form* is to make one's own world to wonder at, reminding us to awaken and attune to the pulsation of broader ecologies. *Sharing form to evoke formlessness* invites others to travel through

technology to meet in the in-betweens of mindful and evocative moments.

## IN CONCLUSION

Calling on Bortoft, we have attempted to encourage sensory, holistic, intuitive, non-verbal and non-linear modes of perception as a way to turn awareness from the singular object (form) and to encounter the whole. Such attempts present another *mondo* in sharing knowledge in academia – what need be explicated and what is better left incomplete? And in sharing such work, is it perhaps the *fluid* and *sensitive* use of written and visual forms that is more important than the weighting given to each? If the technology of writing papers is one kind of form, what forms can we pursue as a design community to also acknowledge and foreground formlessness? The emergent and exciting ways research is being undertaken in creative practices might offer a way. Our goal in delivering an unconventional paper format for our theme is to attempt to evoke in the reader some of the exploration of form and formlessness that is personal, profound and compelling to us. Cognitive and theoretical understanding will only go so far.

Finding a middle way is a timely challenge as "human activity recognition" [e.g.12] informs the design of the systems around us, and computers are asked to interpret further aspects of what humans do. As such, the insights we offer here are not about how we improve, or better design, current or future technology for everyday contexts, or even for mindfulness. While readers in HCI may desire such instruction, that cannot be our purpose here. The constructs that separate form and formlessness lead to a disconnect with the world and with ourselves, as a "spacesuit" padded with "habits and preconceptions, the armor with which one habitually distances oneself from one's experience" [28:25]. A significant stepping stone is the effort required to unlearn and erode entrenched constructs to fully immerse and re-engage with oneself and the world anew [28].

Designing interactive technologies or advancing research on technology and mindfulness requires a similar unlearning. If the technologies we have designed have, in any way, made us more destructive, more isolated and more fearful, then we must take this as a warning that we need a profound reorientation in this community. The compassion underlying the evolution of the philosophies and spiritual teachings we draw upon here would seem to serve well in addressing destruction, isolation and fear. Practicing mindfulness is to embark on a different starting point in considering human-world interaction, as well as considering the smaller subset of human-technology interactions that is normally our community's concern.



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